

References

1. Ross R. The pathogenesis of atherosclerosis - An update. *N Engl J Med* 314:488–500; 1986. (PubMed)
2. Ross R. Atherosclerosis: A defense mechanism gone awry. *Am J Pathol* 143:987–1002; 1993. (PubMed)
3. Packham MA, Rowsell HC, Jorgensen L, Mustard JF. Localized protein accumulation in the wall of the aorta. *Exp Mol Pathol* 7:214–232; 1967. (PubMed)
4. Ross R, Fuster V: The pathogenesis of atherosclerosis: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and coronary artery disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 441–462.
5. Nievelstein PFEM, Fogelman AM, Mottino G, Frank JS. Lipid accumulation in rabbit aortic intima 2 hours after bolus infusion of low density lipoprotein: A deep-etch and immunolocalization study of ultrarapidly frozen tissue. *Arterioscler Thromb* 11:1795–1805; 1991. (PubMed)
6. Hauss WH, Gerlach U, Junge-Hulsing G, Themann H, Wirth W. Studies on the “nonspecific mesenchymal reaction” and the “transit zone” in myocardial lesions and atherosclerosis. *Ann NY Acad Sci* 156:207–218; 1969. (PubMed)
7. Friedberg CK: Diseases of the heart. Philadelphia, London. WB Saunders & Co., 1966, pp674.
8. Walton KW. Pathogenetic mechanisms in atherosclerosis. *Am J Cardiol* 35:542–558; 1975. (PubMed)
9. Wight TN. Cell biology of arterial proteoglycans. *Arteriosclerosis* 9:1–20; 1989. (PubMed)
10. Wight TN: The vascular extracellular matrix: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and coronary artery disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 421–440.
11. Wilens SL. The nature of diffuse intimal thickening of arteries. *Am J Pathol* 27:825–833; 1951. (PubMed)
12. Benditt EP. The origin of atherosclerosis: The monoclonal hypothesis, which holds that the proliferating cells of an atherosclerotic plaque all stem from one mutated cell, suggests new lines of research on the causes of coronary disease. *Scientific American* 236:74–85; 1977. (PubMed)
13. Schonherr E, Jarvelainen HT, Sandell LJ, Wight TN. Effects of platelet-derived growth factor and transforming growth factor-?1 on the synthesis of a large versican-like chondroitin sulfate proteoglycan by arterial smooth muscle cells. *J Biol Chem* 266:17640–17647; 1991. (PubMed)
14. Clowes AW, Schwartz SM. Significance of quiescent smooth muscle migration in the injured rat carotid artery. *Circ Res* 56:139–145; 1985. (PubMed)
15. Stary HC, Chandler AB, Dinsmore RE, Fuster V, Glagov S, Insull W Jr., Rosenfeld ME, Schwartz CJ, Wagner WD, Wissler RW. A definition of advanced types of atherosclerotic lesions and a histological classification of atherosclerosis: A report from the committee on vascular lesions of the council on arteriosclerosis, American Heart Association. *Circulation* 92:1355–1374; 1995. (PubMed)
16. Ananyeva NM, Tjurmin AV, Berliner JA, Chisolm GM, Liau G, Winkles JA, Haudenschild CC. Oxidized LDL mediates the release of fibroblast growth factor-1. *Arterioscler Thromb Vasc Biol* 17:445–453; 1997. (PubMed)
17. Owens GK: Role of alterations in the differentiated state of smooth muscle cell in atherogenesis: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and coronary artery disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 401–420.
18. Ross R. Atherosclerosis - An inflammatory disease. *N Engl J Med* 340:115–126; 1999. (PubMed)
19. Williams KJ, Tabas I. The response-to-retention hypothesis of early atherogenesis. *Arterioscler Thromb Vasc Biol* 15:551–561; 1995. (PubMed)
20. Ross R, Glomset JA. The pathogenesis of atherosclerosis (first of two parts). *N Engl J Med* 295:369–377; 1976. (PubMed)
21. Stary HC, Blankenhorn DH, Chandler AB, Glagov S, Insull W Jr., Richardson M, Rosenfeld ME, Schaffer SA, Schwartz CJ, Wagner WD, et al. A definition of the intima of human arteries and of its atherosclerosis-prone regions: A report from the Committee on Vascular Lesions of the Council on

Atherosclerosis

- Arteriosclerosis, American Heart Association. Circulation 85:391–405; 1992. (PubMed)
22. Smedby O. Do plaques grow upstream or downstream? An angiographic study in the femoral artery. Arterioscler Thromb Vasc Biol 17:912–918; 1997. (PubMed)
23. Guyton JR, Klemp KF. Transitional features in human atherosclerosis: Intimal thickening, cholesterol clefts, and cell loss in human aortic fatty streaks. Am J Pathol 143:1444–1457; 1993. (PubMed)
24. Restrepo C, Tracy RE. Variations in human aortic fatty streaks among geographic locations. Atherosclerosis 21:179–193; 1975. (PubMed)
25. Kockx MM, De Meyer GRY, Muhring J, Jacob W, Bult H, Herman AG. Apoptosis and related proteins in different stages of human atherosclerotic plaques. Circulation 97:2307–2315; 1998. (PubMed)
26. Kruth HS. Localization of unesterified cholesterol in human atherosclerotic lesions: Demonstration of filipin-positive, oil-red-O-negative particles. Am J Pathol 114:201–208; 1984. (PubMed)
27. Ross R. The pathogenesis of atherosclerosis: A perspective for the 1990s. Nature 362:801–809; 1993. (PubMed)
28. Gown AM, Tsukada T, Ross R. Human atherosclerosis: II. Immunocytochemical analysis of the cellular composition of human atherosclerotic lesions. Am J Pathol 125:191–207; 1986. (PubMed)
29. Ross R, Wight TN, Strandness E, Thiele B. Human Atherosclerosis: Cell constitution and characteristics of advanced lesions of the superficial femoral artery. Am J Pathol 114:79–93; 1984. (PubMed)
30. Chisolm GM, Penn MS: Oxidized lipoproteins and atherosclerosis: In Fuster V, Ross R, Topol EJ (eds): Atherosclerosis and Coronary Artery Disease. Philadelphia – New York. Lippincott-Raven, 1996, Vol 1 pp 129–150.
31. Steinberg D, Witztum JL. Lipoproteins and atherogenesis: Current concepts. JAMA 264:3047–3052; 1990. (PubMed)
32. Benditt EP, Benditt JM. Evidence for a monoclonal origin of human atherosclerotic plaques. Proc Nat Acad Sci USA 70:1753–1756; 1973. (PubMed)(Full text in PMC)
33. Bocan TMA, Schifani TA, Guyton JR. Ultrastructure of the human aortic fibrolipid lesion: Formation of the atherosclerotic lipid-rich core. Am J Pathol 123:413–424; 1986. (PubMed)
34. Steinberg D, Lewis A. Connor memorial lecture: Oxidative modification of LDL and atherogenesis. Circulation 95:1062–1071; 1997. (PubMed)
35. Stary HC, Chandler AB, Glagov S, Guyton JR, Insull W Jr., Rosenfeld ME, Schaffer SA, Schwartz CJ, Wagner WD, Wissler RW. A definition of initial, fatty streak, and intermediate lesions of atherosclerosis. A report from the committee on vascular lesions of the council on arteriosclerosis, American Heart Association. Arterioscler Thromb 14:840–856; 1994. (PubMed)
36. Leibovich SJ, Ross R. The role of the macrophage in wound repair. Am J Pathol 78:71–91; 1975. (PubMed)
37. Raines EW, Rosenfeld ME, Ross R: The role of macrophages. In Fuster V, Ross R, Topol EJ (eds): Atherosclerosis and Coronary Artery Disease. Philadelphia – New York. Lippincott-Raven, 1996, Vol 1 pp 539–556.
38. Hurt-Camejo E, Camejo G, Rosengren B, Lopez F, Ahlstrom C, Fager G, Bondjers G. Effect of arterial proteoglycans and glycosaminoglycans on low density lipoprotein oxidation and its uptake by human macrophages and arterial smooth muscle cells. Arterioscler Thromb 12:569–583; 1992. (PubMed)
39. Best PJM, Hasdai D, Sangiorgi G, Schwartz RS, Holmes DR Jr., Simari RD, Lerman A. Apoptosis: Basic concepts and implications in coronary artery disease. Arterioscler Thromb Vasc Biol 19:14–22; 1999. (PubMed)
40. Bauriedel G, Hutter R, Welsch U, Bach R, Sievert H, Luderitz B. The role of smooth muscle cell death in advanced coronary primary lesions: implications for plaque instability. Cardiovasc Res 41:480–488; 1999. (PubMed)
41. Seshiah PN, Kereiakes DJ, Vasudevan SS, Lopes N, Su BY, Flavahan NA, Goldschmidt-Clermont PJ. Activated monocytes induce smooth muscle cell death. Role of macrophage colony-stimulating factor and cell contact. Circulation 105:174–180; 2002. (PubMed)
42. Guyton JR, Klemp KF. The lipid-rich core region of human atherosclerotic fibrous plaques: Prevalence of small lipid droplets and

Atherosclerosis

- vesicles by electron microscopy. *Am J Pathol* 134:705–717; 1989. (PubMed)
43. Schwartz SM, Bennett MR. Death by any other name. *Am J Pathol* 147:229–234; 1995. (PubMed)
44. Bonin LR, Madden K, Shera K, Ihle J, Matthews C, Aziz S, Perez-Reyes N, McDougall JK, Conroy SC. Generation and characterization of human smooth muscle cell lines derived from atherosclerotic plaque. *Arterioscler Thromb Vasc Biol* 19:575–587; 1999. (PubMed)
45. Fuster V, Lewis A. Conner Memorial Lecture: Mechanisms leading to myocardial infarction: Insights from studies of vascular biology. *Circulation* 90:2126–2146; 1994. (PubMed)
46. Saphir O, Gore I. Evidence for an inflammatory basis of coronary arteriosclerosis in the young. *Arch Pathol* 49:418–426; 1950.
47. Cotran RS, Kumar V, Robbins SL, Schoen FJ (eds): Inflammation and repair: in Robbins Pathologic Basis of Disease. Philadelphia. WB Saunders Company, 1994, pp 51–93.
48. Frostegard J, Wu R, Giscombe R, Holm G, Lefvert AK, Nilsson J. Induction of T-cell activation by oxidized low density lipoprotein. *Arterioscler Thromb* 12:461–467; 1992. (PubMed)
49. Libby P. Atheroma: More than mush. *Lancet* 348:s4–s7; 1996. (PubMed)
50. Hansson GK, Libby P: The role of the lymphocyte: in Fuster V, Ross R, Topol EJ (eds): Atherosclerosis and Coronary Artery Disease. New York. Lippincott-Raven, 1996, vol 1, pp 557–568.
51. Jonasson L, Holm J, Skalli O, Bondjers G, Hansson GK. Regional accumulations of T cells, macrophages and smooth muscle cells in the human atherosclerotic plaque. *Arteriosclerosis* 6:131–138; 1986. (PubMed)
52. Schwartz CJ, Mitchell JRA. Cellular infiltration of the human arterial adventitia associated with atheromatous plaques. *Circulation* 26:73–78; 1962. (PubMed)
53. van der Wal AC, Becker AE, van der Loos CM, Das PK. Site of intimal rupture or erosion of thrombosed coronary atherosclerotic plaques is characterized by an inflammatory process irrespective of the dominant plaque morphology. *Circulation* 89:36–44; 1994. (PubMed)
54. Stratford N, Britten K, Gallagher P. Inflammatory infiltrates in human coronary atherosclerosis. *Atherosclerosis* 59:271–276; 1986. (PubMed)
55. Kohchi K, Takebayashi S, Hiroki T, Nobuyoshi M. Significance of adventitial inflammation of the coronary artery in patients with unstable angina: Results at autopsy. *Circulation* 71:709–716; 1985. (PubMed)
56. Davies MJ: Clinical significance of plaque rupture. *Am Coll Cardiol Accel (tape)* 1999;51: July side 1.
57. Frink RJ. Chronic ulcerated plaques: new insights into the pathogenesis of acute coronary disease. *J Invasive Cardiol* 6:173–185; 1994. (PubMed)
58. Guyton JR, Klemp KF. Development of the lipid-rich core in human atherosclerosis. *Arterioscler Thromb Vasc Biol* 16:4–11; 1996. (PubMed)
59. Kockx MM. Apoptosis in the atherosclerotic plaque: Quantitative and qualitative aspects. *Arterioscler Thromb Vasc Biol* 18:1519–1522; 1998. (PubMed)
60. Friedman M: Maturation and degeneration of the coronary plaque: in Pathogenesis of Coronary Artery Disease. New York. McGraw-Hill, 1969, pp 148–164.
61. Chisolm GM, Ma G, Irwin KC, Martin LL, Gunderson KG, Linberg LF, Morel DW, DiCorleto PE. 7-hydroperoxycholest-5-en-3-ol, a component of human atherosclerotic lesions, is the primary cytotoxin of oxidized human low density lipoprotein. *Proc Natl Acad Sci USA* 91:11452–11456; 1994. (PubMed) (Full text in PMC)
62. Alexander CM, Werb Z: Extracellular matrix degradation: in Hay ED(ed): Cell Biology of Extracellular Matrix, second edition. New York. Plenum Press, 1991, pp 235–302.
63. Lee RT, Libby P. The unstable atheroma. *Arterioscler Thromb Vasc Biol* 17:1859–1867; 1997. (PubMed)
64. Frink RJ, Ostrach LH, Rooney PA, Rose J. Coronary thrombosis, ulcerated atherosclerotic plaques and platelet/fibrin microemboli in patients dying with acute coronary disease. A large autopsy study. *J Invasive Cardiol* 2:199–210; 1990.
65. Casscells W, Hathorn B, David M, Krabach T, Vaughn WK, McAllister HA, Bearman G, Willerson JT. Thermal detection of cellular

Atherosclerosis

- infiltrates in living atherosclerotic plaques: Possible implications for plaque rupture and thrombosis. *Lancet* 347:1447–1449; 1996. (PubMed)
66. Friedman M: The pathogenesis of acute coronary thrombosis and intramural hemorrhage: in *Pathogenesis of Coronary Artery Disease*. New York. McGraw-Hill, 1969, pp 164–195.
67. Ridolfi RL, Hutchins GM. The relationship between coronary artery lesions and myocardial infarcts: Ulceration of atherosclerotic plaques precipitating coronary thrombosis. *Am Heart J* 93:468–486; 1977. (PubMed)
68. Kitazume H, Kubo I, Iwama T, Ageishi Y. Long-term angiographic follow-up of lesions patent 6 months after percutaneous coronary angioplasty. *Am Heart J* 129:441–444; 1995. (PubMed)
69. Braunwald E, Antman EM, Beasley JW, Califf RM, Cheitlin MD, Hochman JS, Jones RH, Kereiakes D, Kupersmith J, Levin TN, et al. ACC/AHA guidelines for the management of patients with unstable angina and non-ST-segment elevation myocardial infarction: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on the Management of Patients With Unstable Angina). *J Am Coll Cardiol* 36:970–1062; 2000. (PubMed)
70. Friedman M. The coronary thrombus: Its origin and fate. *Hum Pathol* 2:81–128; 1971. (PubMed)
71. Stefanadis C, Diamantopoulos L, Vlachopoulos C, Tsiamis E, Dernellis J, Toutouzas K, Stefanadi E, Toutouzas P. Thermal heterogeneity within human atherosclerotic coronary arteries detected in vivo: A new method of detection by application of a special thermography catheter. *Circulation* 99:1965–1971; 1999. (PubMed)
72. Yuan C, Petty C, O'Brien KD, Hatsukami TS, Eary JF, Brown BG. In vitro and in situ magnetic resonance imaging signal features of atherosclerotic plaque-associated lipids. *Arterioscler Thromb Vasc Biol* 17:1496–1503; 1997. (PubMed)
73. Flacke S, Fischer S, Scott MJ, Fuhrhop RJ, Allen JS, McLean M, Winter P, Sicard GA, Gaffney PJ, Wickline SA, et al. Novel MRI contrast agent for molecular imaging of fibrin. Implications for detecting vulnerable plaques. *Circulation* 104:1280–1285; 2001. (PubMed)
74. Wexler L, Brundage B, Crouse J, Detrano R, Fuster V, Maddahi J, Rumberger J, Stanford W, White R, Taubert K. Coronary artery calcification: Pathology, epidemiology, imaging methods, and clinical implications: A statement for health professionals from the American Heart Association. *Circulation* 94:1175–1192; 1996. (PubMed)
75. Frink RJ, Achor RWP, Brown AL Jr., Kincaid OW, Brandenburg RO. Significance of calcification of the coronary arteries. *Am J Cardiol* 26:241–247; 1970. (PubMed)
76. Janowitz WR, Agatston AS, Viamonte M Jr.: Comparison of serial quantitative evaluation of calcified coronary artery plaque by ultrafast computed tomography in persons with and without obstructive coronary artery disease. *Am J Cardiol* 68:1–6; 1991. (PubMed)
77. Bostrom K, Watson KE, Horn S, Wortham C, Herman IM, Demer LL. Bone morphogenetic protein expression in human atherosclerotic lesions. *J Clin Invest* 91:1800–1809; 1993. (PubMed)(Full text in PMC)
78. Bostrom K, Watson KE, Stanford WP, Demer LL. Atherosclerotic calcification: Relation to developmental osteogenesis. *Am J Cardiol* 75:88B–91B; 1995. (PubMed)
79. Callister TQ, Raggi P, Cool B, Lippolis NJ, Russo DJ. Effect of HMG-CoA reductase inhibitors on coronary artery disease as assessed by electron-beam computed tomography. *N Engl J Med* 339:1972–1978; 1998. (PubMed)
80. Budoff MJ, Lane KL, Bakhsheshi H, Mao S, Grassmann BO, Friedman BC, Brundage BH. Rates of progression of coronary calcium by electron beam tomography. *Am J Cardiol* 86:8–11; 2000. (PubMed)
81. Rumberger JA, Sheedy PF II,, Breen JF, Fitzpatrick LA, Schwartz RS. Electron beam computed tomography and coronary artery disease: Scanning for coronary artery calcification. *Mayo Clin Proc* 71:369–377; 1996. (PubMed)
82. Tanimura A, McGregor DH, Anderson HC. Matrix vesicles in atherosclerotic calcification. *Proc Soc Exp Biol Med* 172:173–177; 1983. (PubMed)
83. Hirsch D, Azoury R, Sarig S, Kruth HS. Colocalization of cholesterol and

Atherosclerosis

- hydroxyapatite in human atherosclerotic lesions. *Calcif Tissue Int* 52:94–98; 1993. (PubMed)
84. Rumberger JA, Simons B, Fitzpatrick LA, Sheedy PF, Schwartz RS. Coronary artery calcium area by electron-beam computed tomography and coronary atherosclerotic plaque area: A histopathologic correlative study. *Circulation* 92:2157–2162; 1995. (PubMed)
85. Gutfinger DE, Leung CY, Hiro T, Maheswaran B, Nakamura S, Detrano R, Kang X, Tang W, Tobis JM. In vitro atherosclerotic plaque and calcium quantitation by intravascular ultrasound and electron-beam computed tomography. *Am Heart J* 131:899–906; 1996. (PubMed)
86. Mintz GS, Pichard AD, Popma JJ, Kent KM, Satler LF, Bucher TA, Leon MB. Determinants and correlates of target lesion calcium in coronary artery disease: A clinical, angiographic and intravascular ultrasound study. *J Am Coll Cardiol* 29:268–274; 1997. (PubMed)
87. Sangiorgi G, Rumberger JA, Severson A, Edwards WD, Gregoire J, Fitzpatrick LA, Schwartz RS. Arterial calcification and not lumen stenosis is highly correlated with atherosclerotic plaque burden in humans: A histologic study of 723 coronary artery segments using nondecalcifying methodology. *J Am Coll Cardiol* 31:126–133; 1998. (PubMed)
88. Devries S, Wolfkiel C, Shah V, Chomka E, Rich S. Reproducibility of the measurement of coronary calcium with ultrafast computed tomography. *Am J Cardiol* 75:973–975; 1995. (PubMed)
89. Keelan PC, Bielak LF, Ashai K, Jamjoum LS, Denktas AE, Rumberger JA, Sheedy PF, Peyser PA, Schwartz RS. Long-term prognostic value of coronary calcification detected by electron-beam computed tomography in patients undergoing coronary angiography. *Circulation* 104:412–417; 2001. (PubMed)
90. Detrano RC, Wong ND, Doherty TM, Shavelle RM, Tang W, Gintzon LE, Budoff MJ, Narahara KA. Coronary calcium does not accurately predict near-term future coronary events in high-risk adults. *Circulation* 99:2633–2638; 1999. (PubMed)
91. Proudfoot D, Skepper JN, Shanahan CM, Weissberg PL. Calcification of human vascular cells in vitro is correlated with high levels of matrix Gla protein and low levels of osteopontin expression. *Arterioscler Thromb Vasc Biol* 18:379–388; 1998. (PubMed)
92. Berliner JA, Navab M, Fogelman AM, Frank JS, Demer LL, Edwards PA, Watson AD, Lusis AJ. Atherosclerosis: Basic mechanisms: Oxidation, inflammation, and genetics. *Circulation* 91:2488–2496; 1995. (PubMed)
93. Fitzpatrick LA, Severson A, Edwards WD, Ingram RT. Diffuse calcification in human coronary arteries: Association of osteopontin with atherosclerosis. *J Clin Invest* 4:1597–1604; 1994. (PubMed)
94. Bini A, Mann KG, Kudryk BJ, Schoen FJ. Noncollagenous bone matrix proteins, calcification, and thrombosis in carotid artery atherosclerosis. *Arterioscler Thromb Vasc Biol* 19:1852–1861; 1999. (PubMed)
95. Tanimura A, McGregor DH, Anderson HC. Calcification in atherosclerosis. I. Human studies. *J Exp Pathol* 2:261–273; 1986. (PubMed)
96. Anderson HC. Calcific diseases: A concept. *Arch Pathol Lab Med* 107:341–348; 1983. (PubMed)
97. Anderson HC. Molecular biology of matrix vesicles. *Clinical Orthopaedics and Related Research* 314:266–280; 1995. (PubMed)
98. Kockx MM, Muhring J, Bortier H, De Meyer GRY, Jacob W. Biotin- or digoxigenin-conjugated nucleotides bind to matrix vesicles in atherosclerotic plaques. *Am J Pathol* 148:1771–1777; 1996. (PubMed)
99. Demer LL. A skeleton in the atherosclerosis closet. *Circulation* 92:2029–2032; 1995. (PubMed)
100. O'Brien ER, Garvin MR, Stewart DK, Hinohara T, Simpson JB, Schwartz SM, Giachelli CM. Osteopontin is synthesized by macrophage, smooth muscle, and endothelial cells in primary and restenotic human coronary atherosclerotic plaques. *Arterioscler Thromb* 14:1648–1656; 1994. (PubMed)
101. Ikeda T, Shirasawa T, Esaki Y, Yoshiki S, Hirokawa K. Osteopontin mRNA is expressed by smooth muscle-derived foam cells in human atherosclerotic lesions of the aorta. *J Clin Invest* 92:2814–2820; 1993. (PubMed)(Full text in PMC)
102. Frink RJ, Merrick B. The sheep heart: Coronary and conduction system anatomy with special reference to the presence of an os cordis. *Anat Rec* 179:189–199; 1974. (PubMed)

Atherosclerosis

103. Jeziorska M, McCollum C, Wooley DE. Observations on bone formation and remodelling in advanced atherosclerotic lesions of human carotid arteries. *Virchows Arch* 433:559–565; 1998. (PubMed)
104. Winternitz MC, Thomas RM, LeCompte PM: Adaptive changes. In the biology of arteriosclerosis. Springfield. Charles C. Thomas, 1938, pp 32–46.
105. Bendeck MP, Irvin C, Reidy M, Smith L, Mulholland D, Horton M, Giachelli CM. Smooth muscle cell matrix metalloproteinase production is stimulated via $\beta_1\beta_3$ integrin. *Arterioscler Thromb Vasc Biol* 20:1467–1472; 2000. (PubMed)
106. Baldwin AL, Wilson LM, Gradus-Pizlo I, Wilensky R, March K. Effect of atherosclerosis on transmural convection and arterial ultrastructure: Implications for local intravascular drug delivery. *Arterioscler Thromb Vasc Biol* 17:3365–3375; 1997. (PubMed)
107. Patel S, Shi Y, Niculescu R, Chung EH, Martin JL, Zalewski A. Characteristics of coronary smooth muscle cells and adventitial fibroblasts. *Circulation* 101:524–532; 2000. (PubMed)
108. Shi Y, Pieniek M, Fard A, O'Brien J, Mannion JD, Zalewski A. Adventitial remodeling after coronary arterial injury. *Circulation* 93:340–348; 1996. (PubMed)
109. Pasceri V, Yeh ETH. A tale of two diseases: Atherosclerosis and rheumatoid arthritis. *Circulation* 100:2124–2126; 1999. (PubMed)
110. Farb A, Burke AP, Tang AL, Liang Y, Mannan P, Smialek J, Virmani R. Coronary plaque erosion without rupture into a lipid core. A frequent cause of coronary thrombosis in sudden coronary death. *Circulation* 93:1354–1363; 1996. (PubMed)
111. Freiman PC, Mitchell GG, Heistad DD, Armstrong ML, Harrison DG. Atherosclerosis impairs endothelium-dependent vascular relaxation to acetylcholine and thrombin in primates. *Circ Res* 58:783–789; 1986. (PubMed)
112. Hajjar DP, Fabricant CG, Minick CR, Fabricant J. Virus-induced atherosclerosis: Herpesvirus infection alters aortic cholesterol metabolism and accumulation. *Am J Pathol* 122:62–70; 1986. (PubMed)
113. Huang Y, Mironova M, Lopes-Virella MF. Oxidized LDL stimulates matrix metalloproteinase-1 expression in human vascular endothelial cells. *Arterioscler Thromb Vasc Biol* 19:2640–2647; 1999. (PubMed)
114. Galis ZS, Sukhova GK, Lark MW, Libby P. Increased expression of matrix metalloproteinases and matrix degrading activity in vulnerable regions of human atherosclerotic plaques. *J Clin Invest* 94:2493–2503; 1994. (PubMed)(Full text in PMC)
115. Lee AJ, Smith WCS, Lowe GDO, Tunstall-Pedoe H. Plasma fibrinogen and coronary risk factors: The Scottish Heart Health Study. *J Clin Epidemiol* 43:913–919; 1990. (PubMed)
116. Liuzzo G, Biasucci LM, Gallimore JR, Grillo RL, Rebuzzi AG, Pepys MB, Maseri A. The prognostic value of C-reactive protein and serum amyloid A protein in severe unstable angina. *N Engl J Med* 331:417–424; 1994. (PubMed)
117. Constantinides P. Plaque fissures in human coronary thrombosis. *J Atheroscler Res* 6:1–17; 1966.
118. Horie T, Sekiguchi M, Hirosawa K. Relationship between myocardial infarction and preinfarction angina. *Am Heart J* 95:81–88; 1978. (PubMed)
119. Fulton WFM: The coronary arteries. Springfield, Illinois. Charles C. Thomas, 1965, pp 354.
120. Davies MJ, Thomas AC. Plaque fissuring – the cause of acute myocardial infarction, sudden ischaemic death, and crescendo angina. *Br Heart J* 53:363–373; 1985. (PubMed)
121. Badimon L, Badimon JJ: Interaction of platelet activation and coagulation: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia – New York. Lippincott-Raven, 1996, vol 1, pp 639–656.
122. The GUSTO Investigators. An international randomized trial comparing four thrombolytic strategies for acute myocardial infarction. *N Engl J Med* 329:673–682; 1993. (PubMed)
123. Vincent GM, Anderson JL, Marshall HW. Coronary spasm producing coronary thrombosis and myocardial infarction. *N Engl J Med* 309:220–223; 1983. (PubMed)
124. Zijlstra F, Hoornste JCA, de Boer M-J, Reijers S, Miedema K, Ottenvanger JP, van't Hof AWJ, Suryapranata H. Long-term benefit of primary angioplasty as compared with thrombolytic therapy for acute myocardial infarction. *N Engl J Med* 341:1413–1419; 1999. (PubMed)
125. Schomig A, Kastrati A, Dirschinger J, Mehilli J, Schricke U, Pache J, Martinoff S, Neumann F-J, Schwaiger M. Coronary stenting plus platelet

Atherosclerosis

- glycoprotein IIb/IIIa blockade compared with tissue plasminogen activator in acute myocardial infarction. *N Engl J Med* 343:385–391; 2000. (PubMed)
126. Gibson CM: Abnormal flow following adjunctive stent placement is associated with a higher mortality in acute MI. *Am Coll Cardiol Accel (tape)* 2000;52:September,side 3.
127. Cotran RS, Kumar V, Robbins SL (eds): Hemodynamic disorders, thrombosis, and shock: in *Robbins Pathologic basis of Disease*. Philadelphia. WB Saunders Company, 1994, pp 93–122.
128. Mustard JF: Platelets and thrombosis in acute myocardial infarction. *Hosp Pract* 1972;Jan: 115–128.
129. Marcus AJ: Platelet activation: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 607–638.
130. Lip GYH, Blann AD. Does hypertension confer a prothrombotic state? Virchow's triad revisited. *Circulation* 101:218–220; 2000. (PubMed)
131. Lupu F, Bergonzelli GE, Heim DA, Cousin E, Genton CY, Bachmann F, Kruithof EKO. Localization and production of plasminogen activator inhibitor-1 in human healthy and atherosclerotic arteries. *Arterioscler Thromb* 13:1090–1100; 1993. (PubMed)
132. Lupu F, Heim DA, Bachmann F, Hurni M, Kakkar VV, Kruithof EKO. Plasminogen activator expression in human atherosclerotic lesions. *Arterioscler Thromb Vasc Biol* 15:1444–1455; 1995. (PubMed)
133. Kohler HP, Grant PJ. Plasminogen-activator inhibitor type 1 and coronary artery disease. *N Engl J Med* 342:1792–1801; 2000. (PubMed)
134. Chobanian AV, Dzau VJ: Renin angiotensin system and atherosclerotic vascular disease: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 237–242.
135. Ridker PM, Gaboury CL, Conlin PR, Seely EW, Williams GH, Vaughan DE. Stimulation of plasminogen activator inhibitor in vivo by infusion of angiotensin II: Evidence of a potential interaction between the renin-angiotensin system and fibrinolytic function. *Circulation* 87:1969–1973; 1993. (PubMed)
136. Libby P, Simon DI. Inflammation and thrombosis. *The Clot thickens*. *Circulation* 103:1718–1720; 2001. (PubMed)
137. Mustard JF, Packham MA, Kinlough-Rathbone RL: Platelets and mechanisms of thrombosis and atherosclerosis: In *Biology and Pathology of platelet-vessel wall interactions*. Academic Press;1986:pp 1–18
138. Falk E. Morphologic features of unstable atherothrombotic plaques underlying acute coronary syndromes. *Am J Cardiol* 63:114E–120E; 1989. (PubMed)
139. Davies MJ. Anatomic features in victims of sudden coronary death: Coronary artery pathology. *Circulation* 85([suppl I]):I19–I24; 1992. (PubMed)
140. Lawn RM, Scanu AM: Lipoprotein(a): in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 151–162.
141. Chew DP, Bhatt DL, Sapp S, Topol EJ. Increased mortality with oral platelet glycoprotein IIb/IIIa antagonists: A meta-analysis of phase III multicenter randomized trials. *Circulation* 103:201–206; 2001. (PubMed)
142. Shah PK. Circulating markers of inflammation for vascular risk prediction: Are they ready for prime time. *Circulation* 105:1758–1759; 2000. (PubMed)
143. Falk E, Shah PK, Fuster V: Pathogenesis of plaque disruption: in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia - New York. Lippincott-Raven, 1996, vol 1, pp 492–510.
144. Nagatomo Y, Nakagawa S, Koiwaya Y, Tanaka K. Coronary angiographic ruptured atheromatous plaque as a predictor of future progression of stenosis. *Am Heart J* 119:1244–1253; 1990. (PubMed)
145. Chester MR, Chen L, Kaski JC. The natural history of unheralded complex coronary plaques. *J Am Coll Cardiol* 28:604–608; 1996. (PubMed)
146. Chen L, Chester MR, Crook R, Kaski JC. Differential progression of complex culprit stenoses in patients with stable and unstable angina pectoris. *J Am Coll Cardiol* 28:597–603; 1996. (PubMed)
147. Haft JI, Al-Zarka AM. Comparison of the natural history of irregular and smooth coronary

Atherosclerosis

- lesions: Insights into the pathogenesis, progression, and prognosis of coronary atherosclerosis. *Am Heart J* 126:551–561; 1993. (PubMed)
148. Frink RJ. Inflammation, chronic ulcerated plaques, and unstable coronary syndromes. *Cardiol Rev* 6:302–311; 1998. (PubMed)
149. Davies MJ. A macro and micro view of coronary vascular insult in ischemic heart disease. *Circulation* 82([suppl II]):II38–II46; 1990. (PubMed)
150. Burke AP, Kolodgie FD, Farb A, Weber DK, Malcom GT, Smialek J, Virmani R. Healed plaque ruptures and sudden coronary death: Evidence that subclinical rupture has a role in plaque progression. *Circulation* 103:934–940; 2001. (PubMed)
151. Nakagawa S, Hanada Y, Koiwaya Y, Tanaka K. Angiographic features in the infarct-related artery after intracoronary urokinase followed by prolonged anticoagulation: Role of ruptured atheromatous plaque and adherent thrombus in acute myocardial infarction *in vivo*. *Circulation* 78:1335–1344; 1988. (PubMed)
152. Mann JM, Davies MJ. Vulnerable plaque: Relation of characteristics to degree of stenosis in human coronary arteries. *Circulation* 94:928–931; 1996. (PubMed)
153. Kristensen SD, Ravn HB, Falk E. Insights into the pathophysiology of unstable coronary artery disease. *Am J Cardiol* 80:5E–9E; 1997. (PubMed)
154. Fuster V, Badimon L, Badimon JJ, Chesebro JH. The pathogenesis of coronary artery disease and the acute coronary syndromes (first of two parts). *N Engl J Med* 326:242–250; 1992. (PubMed)
155. Yutani C, Ishibashi-Ueda H, Konishi M, Shibata J, Arita M. Histopathological study of acute myocardial infarction and pathoetiology of coronary thrombosis: A comparative study in four districts in Japan. *Jpn Circ J* 51:352–361; 1987. (PubMed)
156. Falk E. Plaque rupture with severe pre-existing stenosis precipitating coronary thrombosis: Characteristics of coronary atherosclerotic plaques underlying fatal occlusive thrombi. *Br Heart J* 50:127–134; 1983. (PubMed)
157. Azar RR, Waters DD. The inflammatory etiology of unstable angina. *Am Heart J* 132:1101–1106; 1996. (PubMed)
158. Mustard JF, Groves HM, Kinlough-Rathbone RL, Packham MA. Thrombogenic and nonthrombogenic biological surfaces. *Ann NY Acad Sci* 516:12–21; 1987. (PubMed)
159. Fernandez-Ortiz A, Badimon JJ, Falk E, Fuster V, Meyer B, Mailhac A, Weng D, Shah PK, Badimon L. Characterization of the relative thrombogenicity of atherosclerotic plaque components: Implications for consequences of plaque rupture. *J Am Coll Cardiol* 23:1562–1569; 1994. (PubMed)
160. van Zanten GH, de Graaf S, Slootweg PJ, Heijnen HFG, Connolly TM, de Groot PG, Sixma JJ. Increased platelet deposition on atherosclerotic coronary arteries. *J Clin Invest* 93:615–632; 1994. (PubMed)(Full text in PMC)
161. Galis ZS, Sukhova GK, Kranzhofer R, Clark S, Libby P. Macrophage foam cells from experimental atheroma constitutively produce matrix-degrading proteinases. *Proc Natl Acad Sci USA* 92:1–6; 1995. (PubMed)(Full text in PMC)
162. Brown DL, Hibbs MS, Kearney M, Loushin C, Isner JM. Identification of 92-kD gelatinase in human coronary atherosclerotic lesions: Association of active enzyme synthesis with unstable angina. *Circulation* 91:2125–2131; 1995. (PubMed)
163. Hiraoka N, Allen E, Apel IJ, Weiss SJ. Matrix metalloproteinases regulate neovascularization by acting as pericellular fibrinolysins. *Cell* 95:365–377; 1998. (PubMed)
164. Tanaka K, Zou J-P, Takeda K, Ferrans VJ, Sandford GR, Johnson TM, Finkel T, Epstein SE. Effects of human cytomegalovirus immediate-early proteins on p53-mediated apoptosis in coronary artery smooth muscle cells. *Circulation* 99:1656–1659; 1999. (PubMed)
165. Epstein SE, Zhu J. Lack of association of infectious agents with risk of future myocardial infarction and stroke: Definitive evidence disproving the infection/coronary artery disease hypothesis? *Circulation* 100:1366–1368; 1999. (PubMed)
166. Albert LJ, Inman RD. Molecular mimicry and autoimmunity. *N Engl J Med* 341:2068–2074; 1999. (PubMed)
167. Epstein SE, Zhu J, Burnett MS, Zhou YF, Vercellotti G, Hajjar D. Infection and atherosclerosis: Potential roles of pathogen burden and molecular mimicry. *Arterioscler*

Atherosclerosis

- Thromb Vasc Biol 20:1417–1420; 2000. (PubMed)
168. Murry CE, Gipaya CT, Bartosek T, Benditt EP, Schwartz SM. Monoclonality of smooth muscle cells in human atherosclerosis. Am J Pathol 151:697–706; 1997. (PubMed)
169. Poston RM, Davies DF. Immunity and inflammation in the pathogenesis of atherosclerosis. Atherosclerosis 19:353–367; 1974. (PubMed)
170. Ganz P, Creager MA, Fang JC, McConnell MV, Lee RT, Libby P, Selwyn AP. Pathogenetic mechanisms of atherosclerosis: Effect of lipid lowering on the biology of atherosclerosis. Am J Med 101([suppl 4A]):10S–16S; 1996. (PubMed)
171. The long-term intervention with pravastatin in ischemic disease (LIPID) study group. Prevention of cardiovascular events and death with pravastatin in patients with coronary heart disease and a broad range of initial cholesterol levels. N Engl J Med 339:1349–1357; 1998. (PubMed)
172. Corti R, Fayad ZA, Fuster V, Worthley SG, Helft G, Chesebro J, Mercuri M, Badimon JJ. Effects of lipid-lowering by simvastatin on human atherosclerotic lesions. A longitudinal study by high-resolution, noninvasive magnetic resonance imaging. Circulation 104:249–252; 2001. (PubMed)
173. Moazed TC, Kuo C-C, Grayston JT, Campbell LA. Murine models of Chlamydia pneumoniae infection and atherosclerosis. J Infect Dis 175:883–890; 1997. (PubMed)
174. Joiner KA. Membrane-protein traffic in pathogen-infected cells. J Clin Invest 99:1814–1817; 1997. (PubMed)
175. Hajjar DP, Pomerantz KB, Falcone DJ, Weksler BB, Grant AJ. Herpes simplex virus infection in human arterial cells: Implications in arteriosclerosis. J Clin Invest 80:1317–1321; 1987. (PubMed)(Full text in PMC)
176. Blessing E, Campbell LA, Rosenfeld ME, Chough N, Kuo CC. Chlamydia pneumoniae infection accelerates hyperlipidemia induced atherosclerotic lesion development in C57BL/6J mice. Atherosclerosis 158:13–17; 2001. (PubMed)
177. Gaydos CA, Summersgill JT, Sahney NN, Ramirez JA, Quinn TC. Replication of Chlamydia pneumoniae in vitro in human macrophages, endothelial cells, and aortic artery smooth muscle cells. Infection and Immunity 64:1614–1620; 1996. (PubMed)(Full text in PMC)
178. Knoebel E, Vijayagopal P, Figueroa JE II, Martin DH. In vitro infection of smooth muscle cells by Chlamydia pneumoniae. Infection and Immunity 65:503–506; 1997. (PubMed)(Full text in PMC)
179. Vercellotti GM. Viruses and atherosclerosis: Do they play a pathogenic role? J Investig Med 46:403–407; 1998. (PubMed)
180. Lee A. The Helicobacter pylori genome - New insights into pathogenesis and therapeutics. N Engl J Med 338:832–833; 1998. (PubMed)
181. Vercellotti GM. Effects of viral activation of the vessel wall on inflammation and thrombosis. Blood Coagul Fibrinolysis 9:53–56; 1998. (PubMed)
182. Maass M, Bartels C, Engel PM, Mamat U, Sievers H-H. Endovascular presence of viable Chlamydia pneumoniae is a common phenomenon in coronary artery disease. J Am Coll Cardiol 31:827–832; 1998. (PubMed)
183. Melnick JL, Adam E, DeBakey ME. Possible role of cytomegalovirus in atherogenesis. JAMA 263:2204–2207; 1990. (PubMed)
184. Ong G, Thomas BJ, Mansfield AO, Davidson BR, Taylor-Robinson D. Detection and widespread distribution of Chlamydia pneumoniae in the vascular system and its possible implications. J Clin Pathol 49:102–106; 1996. (PubMed)
185. Saikku P. The epidemiology and significance of Chlamydia pneumoniae. J Infect 25 (Suppl 1):27–34; 1992. (PubMed)
186. Grayston JT, Campbell LA, Kuo CC, Mordhorst CH, Saikku P, Thom DH, Wang SP. A new respiratory tract pathogen: Chlamydia pneumoniae strain TWAR. J Infect Dis 161:618–625; 1990. (PubMed)
187. Epstein SE, Speir E, Zhou YF, Guetta E, Leon M, Finkel T. The role of infection in restenosis and atherosclerosis: Focus on cytomegalovirus. Lancet 348:s13–s17; 1996. (PubMed)
188. Juvonen J, Juvonen T, Laurila A, Alakarppa H, Lounatmaa K, Surcel H-M, Leinonen M, Kairaluoma MI, Saikku P. Demonstration of Chlamydia pneumoniae in the walls of abdominal aortic aneurysms. J Vasc Surg 25:499–505; 1997. (PubMed)
189. Gupta S, Leatham EW, Carrington D, Mendall MA, Kaski JC, Camm AJ. Elevated Chlamydia

Atherosclerosis

- pneumoniae antibodies, cardiovascular events, and azithromycin in male survivors of myocardial infarction. *Circulation* 96:404–407; 1997. (PubMed)
190. Gupta S, Leatham EW. The relation between Chlamydia pneumoniae and atherosclerosis. *Heart* 77:7–8; 1997. (PubMed)
191. Kuo C-C, Gown AM, Benditt EP, Grayston JT. Detection of Chlamydia pneumoniae in aortic lesions of atherosclerosis by immunocytochemical stain. *Arterioscler Thromb* 13:1501–1504; 1993. (PubMed)
192. Delves PJ, Roitt IM. The immune system: Second of two parts. *N Engl J Med* 343:108–117; 2000. (PubMed)
193. Delves PJ, Roitt IM. The immune system: First of two parts. *N Engl J Med* 343:37–49; 2000. (PubMed)
194. Kockx MM, De Meyer GRY, Bortier H, de Meyere N, Muhring J, Bakker A, Jacob W, Van Vaeck L, Herman A. Luminal foam cell accumulation is associated with smooth muscle cell death in the intimal thickening of human saphenous vein grafts. *Circulation* 94:1255–1262; 1996. (PubMed)
195. Kaplan M, Aviram M. Retention of oxidized LDL by extracellular matrix proteoglycans leads to its uptake by macrophages. An alternative approach to study lipoproteins cellular uptake. *Arterioscler Thromb Vasc Biol* 21:386–393; 2001. (PubMed)
196. Selwyn PA. AIDS: What is now known (I. History and immunovirology). *Hosp Pract* 21:67–82; 1986. (PubMed)
197. Fryer RH, Schwobe EP, Woods ML, Rodgers GM. Chlamydia species infect human vascular endothelial cells and induce procoagulant activity. *J Investig Med* 45:168–174; 1997. (PubMed)
198. Friedman M, Van den Bovenkamp GJ. The pathogenesis of a coronary thrombus. *Am J Pathol* 48:19–31; 1966. (PubMed)
199. Ambrose JA. Plaque disruption and the acute coronary syndromes of unstable angina and myocardial infarction: If the substrate is similar, why is the clinical presentation different? *J Am Coll Cardiol* 19:1653–1658; 1992. (PubMed)
200. Cotran RS, Kumar V, Robbins SL, Schoen FJ (eds): *Cellular injury and cellular death: in Robbins Pathologic Basis of Disease*. Philadelphia. WB Saunders Company, 1994, pp 1–34.
201. Mustafa A, Nityanand S, Berglund L, Lithell H, Lefvert AK. Circulating immune complexes in 50-year-old men as a strong and independent risk factor for myocardial infarction. *Circulation* 102:2576–2581; 2000. (PubMed)
202. Kloner RA, Bolli R, Marban E, Reinlib L, Braunwald E, participants . Medical and cellular implications of stunning, hibernation, and preconditioning: An NHLBI Workshop. *Circulation* 97:1848–1867; 1998. (PubMed)
203. Roberts MJD, Young IS, Trouton TG, Trimble ER, Khan MM, Webb SW, Wilson CM, Patterson GC, Adgey AAJ. Transient release of lipid peroxides after coronary artery balloon angioplasty. *Lancet* 336:143–145; 1990. (PubMed)
204. Speir E, Shibutani T, Yu ZX, Ferrans V, Epstein SE. Role of reactive oxygen intermediates in cytomegalovirus gene expression and in the response of human smooth muscle cells to viral infection. *Circ Res* 79:1143–1152; 1996. (PubMed)
205. Galis ZS, Asanuma K, Godin D, Meng X. N-Acetyl-Cysteine decreases the matrix-degrading capacity of macrophage-derived foam cells. New target for antioxidant therapy? *Circulation* 97:2445–2453; 1998. (PubMed)
206. Lyford CL, Connor WE, Hoak JC, Warner ED. The coagulant and thrombogenic properties of human atheroma. *Circulation* 36:284–293; 1967. (PubMed)
207. Jorgensen L, Haerem JW, Chandler AB, Borchgrevink CF. The pathology of acute coronary death. *Acta Anaesthesiol Scand* 29 ([suppl 1]):193–201; 1968. (PubMed)
208. El Fawal MA, Berg GA, Wheatley DJ, Harland WA. Sudden coronary death in Glasgow: Nature and frequency of acute coronary lesions. *Br Heart J* 57:329–335; 1987. (PubMed)
209. Goldstein JA, Demetriou D, Grines CL, Pica M, Shoukfeh M, O'Neill WW. Multiple complex coronary plaques in patients with acute myocardial infarction. *N Engl J Med* 343:915–922; 2000. (PubMed)
210. Lakkis NM, Nagueh SF, Kleiman NS, Killip D, He Z-X, Verani MS, Roberts R, Spencer WH III: Echocardiography-guided ethanol septal reduction for hypertrophic obstructive cardiomyopathy. *Circulation* 98:1750–1755; 1998. (PubMed)

Atherosclerosis

211. Wu KC, Heldman AW, Brinker JA, Hare JM, Lima JAC. Microvascular obstruction after nonsurgical septal reduction for the treatment of hypertrophic cardiomyopathy. *Circulation* 104:1868; 2001. (PubMed)
212. Frink RJ, Trowbridge JO, Rooney PA Jr.: Nonobstructive coronary thrombosis in sudden cardiac death. *Am J Cardiol* 42:48–51; 1978. (PubMed)
213. Davies MJ, Thomas AC, Knapman PA, Hangartner JR. Intramyocardial platelet aggregation in patients with unstable angina suffering sudden ischemic cardiac death. *Circulation* 73:418–427; 1986. (PubMed)
214. Frink RJ, Rooney PA Jr., Trowbridge JO, Rose JP. Coronary thrombosis and platelet/fibrin microemboli in death associated with acute myocardial infarction. *Br Heart J* 59:196–200; 1988. (PubMed)
215. Topol EJ, Yadav JS. Recognition of the importance of embolization in atherosclerotic vascular disease. *Circulation* 101:570–580; 2000. (PubMed)
216. Topol EJ. Inflammation and embolization in ischemic heart disease. *J Invasive Cardiol* 12 ([suppl B]):2B–7B; 2000. (PubMed)
217. Crea F, Gaspardone A. Angina Pectoris. *Circulation* 96:3766–3773; 1997. (PubMed)
218. Meissner MD, Akhtar M, Lehmann MH. Nonischemic sudden tachyarrhythmic death in atherosclerotic heart disease. *Circulation* 84:905–912; 1991. (PubMed)
219. Zipes DP, Wellens HJJ. Sudden cardiac death. *Circulation* 98:2334–2351; 1998. (PubMed)
220. Mallat Z, Benamer H, Hugel B, Benessiano J, Steg PG, Freyssinet J-M, Tedgui A. Elevated levels of shed membrane microparticles with procoagulant potential in the peripheral circulating blood of patients with acute coronary syndromes. *Circulation* 101:841–843; 2000. (PubMed)
221. Naka Y, Stern DM, Pinsky DJ: The pathophysiology and biochemistry of myocardial ischemia, necrosis and reperfusion: In Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia – New York. Lippincott-Raven, 1996, vol 1, pp 807–818.
222. Michaels AD, Gibson CM, Barron HV. Microvascular dysfunction in acute myocardial infarction: Focus on the roles of platelet and inflammatory mediators in the no-reflow phenomenon. *Am J Cardiol* 85:50B–60B; 2000. (PubMed)
223. Barger AC, Beeuwkes R III,, Lainey LL, Silverman KJ. Hypothesis: Vasa vasorum and neovascularization of human coronary arteries: A possible role in the pathophysiology of atherosclerosis. *N Engl J Med* 310:175–177; 1984. (PubMed)
224. Brignole M, Menozzi C, Moya A, Garcia-Civera R, Mont L, Alvarez M, Errazquin F, Beiras J, Bottón N, Donato P, et al. Mechanism of syncope in patients with bundle branch block and negative electrophysiological test. *Circulation* 104:2045–2050; 2001. (PubMed)
225. Frink RJ, James TN. Intracardiac route of the Bezold-Jarisch reflex. *Am J Physiol* 221:1464–1469; 1971. (PubMed)
226. Schlant RC: in Hurst JW, Logue RB, Schlant RC, Wenger NK (eds): *Ischemic myocardial pain*: in *The Heart*. New York. McGraw-Hill Company, 1978, pp 1134–1156.
227. Lewis T. Pain in muscular ischemia: Its relation to anginal pain. *Arch Intern Med* 49:713–727; 1932.
228. Bogaty P, Poirier P, Simard S, Boyer L, Solymoss S, Dagenais GR. Biological profiles in subjects with recurrent acute coronary events compared with subjects with longstanding stable angina. *Circulation* 103:3062–3068; 2001. (PubMed)
229. Maseri A, L'Abbate A, Baroldi G, Chierchia S, Marzilli M, Ballestra AM, Severi S, Parodi O, Biagini A, Distante A, et al. Coronary vasospasm as a possible cause of myocardial infarction: A conclusion derived from the study of "preinfarction" angina. *N Engl J Med* 299:1271–1277; 1978. (PubMed)
230. Parodi O, Uthurralt N, Severi S, Bencivelli W, Michelassi C, L'Abbate A, Maseri A. Transient reduction of regional myocardial perfusion during angina at rest with ST-segment depression or normalization of negative T waves. *Circulation* 63:1238–1247; 1981. (PubMed)
231. Conti RC, Feldman RL, Pepine CJ: The clinical syndrome of variant angina: in Goldberg S (ed): *Coronary Artery Spasm and Thrombosis*. Philadelphia. F.A. Davis Company, 1983, pp 59–69.
232. Chierchia S, de Caterina R, Crea F, Patrono C, Maseri A. Failure of thromboxane A2 blockade

Atherosclerosis

- to prevent attacks of vasospastic angina. *Circulation* 66:702–705; 1982. (PubMed)
233. Maseri A, Chierchia S, Davies G. Pathophysiology of coronary occlusion in acute infarction. *Circulation* 73:233–239; 1986. (PubMed)
234. Maseri A, L'Abbate A, Pesola A, Ballestra AM, Marzilli M, Maltinti G, Severi S, De Nes DM, Parodi O, Biagini A. Coronary vasospasm in angina pectoris. *Lancet* 1:713–717; 1977. (PubMed)
235. Roberts WC, Curry RC Jr., Isner JM, Waller BF, McManus BM, Mariani-Constantini R, Ross AM. Sudden death in Prinzmetal's angina with coronary spasm documented by angiography: Analysis of three necropsy patients. *Am J Cardiol* 50:203–210; 1982. (PubMed)
236. Yamagishi M, Miyatake K, Tamai J, Nakatani S, Koyama J, Nissen SE. Intravascular ultrasound detection of atherosclerosis at the site of focal vasospasm in angiographically normal or minimally narrowed coronary segments. *J Am Coll Cardiol* 23:352–357; 1994. (PubMed)
237. Koyama J, Yamagishi M, Tamai J, Kawano S, Daikoku S, Miyatake K. Comparison of vessel wall morphologic appearance at sites of focal and diffuse coronary vasospasm by intravascular ultrasound. *Am Heart J* 130:440–445; 1995. (PubMed)
238. Ozaki Y, Keane D, Serruys PW. Fluctuation of spastic location in patients with vasospastic angina: A quantitative angiographic study. *J Am Coll Cardiol* 26:1606–1614; 1995. (PubMed)
239. Davis GS, Hollman J. Coronary artery spasm following percutaneous transluminal coronary angioplasty. *Cleve Clin J Med* 54:207–209; 1987. (PubMed)
240. Friedman M, Manwaring JH, Rosenman RH, Donlon G, Ortega P, Grube SM. Instantaneous and sudden deaths: Clinical and pathological differentiation in coronary artery disease. *JAMA* 225:1319–1328; 1973. (PubMed)
241. Ojio S, Takatsu H, Tanaka T, Ueno K, Yokoya K, Matsubara T, Suzuki T, Watanabe S, Morita N, Kawasaki M, et al. Considerable time from the onset of plaque rupture and/or thrombi until the onset of acute myocardial infarction in humans: Coronary angiographic findings within 1 week before onset of infarction. *Circulation* 102:2063–2069; 2000. (PubMed)
242. Kempf FC Jr., Josephson ME. Cardiac arrest recorded on ambulatory electrocardiograms. *Am J Cardiol* 53:1577–1582; 1984. (PubMed)
243. Olshausen KV, Witt T, Pop T, Treese N, Bethge K-P, Meyer J. Sudden cardiac death while wearing a holter monitor. *Am J Cardiol* 67:381–386; 1991. (PubMed)
244. Heidland UE, Strauer BE. Left ventricular muscle mass and elevated heart rate are associated with coronary plaque disruption. *Circulation* 104:1477–1482; 2001. (PubMed)
245. Liberthson RR, Nagel EL, Hirschman JC, Nussenfeld SR, Blackbourne BD, Davis JH. Pathophysiologic observations in prehospital ventricular fibrillation and sudden cardiac death. *Circulation* 49:790–798; 1974. (PubMed)
246. Davies MJ, Thomas A. Thrombosis and acute coronary-artery lesions in sudden cardiac ischemic death. *N Engl J Med* 310:1137–1140; 1984. (PubMed)
247. Stevenson WG, Wiener I, Yeatman L, Wohlgelernter D, Weiss JN. Complicated atherosclerotic lesions: A potential cause of ischemic ventricular arrhythmias in cardiac arrest survivors who do not have inducible ventricular tachycardia? *Am Heart J* 116:1–6; 1988. (PubMed)
248. Ciampicotti R, Taverne R, El Gamal M. Clinical and angiographic observations on resuscitated victims of exercise-related sudden ischemic death. *Am J Cardiol* 68:47–50; 1991. (PubMed)
249. Spaulding CM, Joly L-M, Rosenberg A, Monchi M, Weber SN, Dhainaut J-FA, Carli P. Immediate coronary angiography in survivors of out-of-hospital cardiac arrest. *N Engl J Med* 336:1629–1633; 1997. (PubMed)
250. Reichenbach DD, Moss NS. Myocardial cell necrosis and sudden death in humans. *Circulation* 51 and 52([suppl III]):III60–III62; 1975. (PubMed)
251. Baroldi G. Different types of myocardial necrosis in coronary heart disease: A pathophysiologic review of their functional significance. *Am Heart J* 89:742–752; 1975. (PubMed)
252. Rossi L. Pathologic changes in the cardiac conduction and nervous system in sudden coronary death. *Ann NY Acad Sci* 382:50–68; 1982. (PubMed)
253. Hurwitz JL, Josephson ME. Sudden cardiac death in patients with chronic coronary heart

Atherosclerosis

- disease. *Circulation* 85([suppl I]):I43–I49; 1992. (PubMed)
254. Reichenbach DD, Moss NS, Meyer E. Pathology of the heart in sudden cardiac death. *Am J Cardiol* 39:865–872; 1977. (PubMed)
255. Baroldi G, Falzi G, Mariani F. Sudden coronary death. A postmortem study in 208 selected cases compared to 97 “control” subjects. *Am Heart J* 98:20–31; 1979. (PubMed)
256. Davies MJ. A histological study of the conduction system in complete heart block. *J Pathol Bacteriol* 94:351–358; 1967. (PubMed)
257. Frink RJ, James TN. Normal blood supply to the human HIS bundle and proximal bundle branches. *Circulation* 47:8–18; 1973. (PubMed)
258. Estes EH Jr., Entman ML, Dixon HB II., Hackel DB. The vascular supply of the left ventricular wall: Anatomic observations, plus a hypothesis regarding acute events in coronary artery disease. *Am Heart J* 71:58–67; 1966. (PubMed)
259. Braunwald E. Unstable angina: A classification. *Circulation* 80:410–414; 1989. (PubMed)
260. Arora RR, Magun AM, Grossman M, Katz J. Cholesterol embolization syndrome after intravenous tissue plasminogen activator for acute myocardial infarction. *Am Heart J* 126:225–228; 1993. (PubMed)
261. Hudson MP, Granger CB, Topol EJ, Pieper KS, Armstrong PW, Barbash GI, Guerci AD, Vahanian A, Califf RM, Ohman EM. Early Reinfarction after fibrinolysis. Experience from the global utilization of streptokinase and tissue plasminogen activator (Alteplase) for occluded coronary arteries (GUSTO I) and global use of strategies to open occluded coronary arteries (GUSTO III) trials. *Circulation* 104:1229–1235; 2001. (PubMed)
262. von Birgelen C, Klinkhart W, Mintz GS, Wieneke H, Baumgart D, Haude M, Bartel T, Sack S, Ge J, Erbel R. Size of emptied plaque cavity following spontaneous rupture is related to coronary dimensions, not to the degree of lumen narrowing. A study with intravascular ultrasound in vivo. *Heart* 84:483–488; 2000. (PubMed)
263. Fitzgerald DJ, Catella F, Roy L, Fitzgerald GA. Marked platelet activation in vivo after intravenous streptokinase in patients with acute myocardial infarction. *Circulation* 77:142–150; 1988. (PubMed)
264. The TIMI. Effects of tissue plasminogen activator and a comparison of early invasive and conservative strategies in unstable angina and non-Q-wave myocardial infarction: Results of the TIMI IIIB Trial. *Circulation* 89:1545–1556; 1994. (PubMed)
265. Fu Y, Chang W-C, Mark D, Califf RM, Mackenzie B, Granger CB, Topol EJ, Hlatky M, Armstrong PW. for the global use of strategies to open occluded coronary arteries (GUSTO) IIb investigators. Canadian-American differences in the management of acute coronary syndromes in the GUSTO IIb Trial: One-year follow-up of patients without ST-segment elevation. *Circulation* 102:1375–1381; 2000. (PubMed)
266. Cannon CP, Weintraub WS, Demopoulos LA, Vicari R, Frey MJ, Lakkis N, Neumann FJ, Robertson DH, DeLucca PT, DiBattiste PM, et al. for the TACTICS-thrombolysis in myocardial infarction 18 Investigators. Comparison of early invasive and conservative strategies in patients with unstable coronary syndromes treated with the glycoprotein IIb/IIIa inhibitor Tirofiban. *N Engl J Med* 344:1879–1887; 2001. (PubMed)
267. de Lemos JA, Gibson CM, Antman EM, Murphy SA, Morrow DA, Schuhwerk KC, Schweiger M, Coussemant P, Van de Werf F, Braunwald E. Abciximab and early adjunctive percutaneous coronary intervention are associated with improved ST-segment resolution after thrombolysis: Observations from the TIMI 14 trial. *Am Heart J* 141:592–598; 2001. (PubMed)
268. Mathew V, Farkouh ME, Gersh BJ, Rihal CS, Reeder GS, Grill DE, Urban LH, Kopecky SL, Chesebro JH, Holmes DR. Early coronary angiography improves long-term survival in unstable angina. *Am Heart J* 142:768–774; 2001. (PubMed)
269. Kennedy JW. Thrombolytic therapy in acute myocardial infarction. *J Am Coll Cardiol* 33:1829–1832; 1999. (PubMed)
270. Kidwell GA, Chung MK: Ventricular arrhythmias. in Fuster V, Ross R, Topol EJ (eds): *Atherosclerosis and Coronary Artery Disease*. Philadelphia – New York. Lippincott-Raven, 1996, Vol 2, pp 995–1011.
271. Murohara T, Kamijkkoku S, Honda T. A possible predictor of reperfusion ventricular arrhythmias. *Crit Care Med* 28:1861–1864; 2000. (PubMed)
272. ISIS 1 (First international study of infarct survival) collaborative group. Mechanisms for

Atherosclerosis

- the early mortality reduction produced by beta blockade started early in acute myocardial infarction. *ISIS 1*. Lancet 1:921–923; 1988. (PubMed)
273. Honan MB, Harrell FE Jr., Reimer KA, Califf RM, Mark DB, Pryor DB, Hlatky MA. Cardiac rupture, mortality and the timing of thrombolytic therapy: A meta-analysis. *J Am Coll Cardiol* 16:359–367; 1990. (PubMed)
274. Kleiman NS, White HD, Ohman EM, Ross AM, Woodlief LH, Califf RM, Holmes DR Jr., Bates E, Pfisterer M, Vahanian A, et al. Mortality within 24 hours of thrombolysis for myocardial infarction. The importance of early reperfusion. *Circulation* 90:2658–2665; 1994. (PubMed)
275. Pohjola-Sintonen S, Muller JE, Stone PH, Willich SN, Antman EM, Davis VG, Parker CB, Braunwald E, the MILLS Study Group. Ventricular septal and free wall rupture complicating acute myocardial infarction: Experience in the Multicenter Investigation of Limitation of Infarct Size. *Am Heart J* 117:809–818; 1989. (PubMed)
276. Bates RJ, Beutler S, Resnekov L, Anagnostopoulos CE. Cardiac rupture - Challenge in diagnosis and management. *Am J Cardiol* 40:429–437; 1977. (PubMed)
277. Kinn JW, O'Neill WW, Benzuly KH, Jones DE, Grines CL. Primary angioplasty reduces risk of myocardial rupture compared to thrombolysis for acute myocardial infarction. *Cathet Cardiovasc Diagn* 42:151–157; 1997. (PubMed)
278. Renkin J, Wijns W, Ladha Z, Col J. Reversal of segmental hypokinesis by coronary angioplasty in patients with unstable angina, persistent T wave inversion, and left anterior descending coronary artery stenosis: Additional evidence for myocardial stunning in humans. *Circulation* 82:913–921; 1990. (PubMed)
279. Bolli R. Myocardial “stunning” in man. *Circulation* 86:1671–1691; 1992. (PubMed)
280. Kloner RA, Allen J, Cox TA, Zheng Y, Ruiz CE. Stunned left ventricular myocardium after exercise treadmill testing in coronary artery disease. *Am J Cardiol* 68:329–334; 1991. (PubMed)
281. Buchthal SD, den Hollander JA, Merz CNB, Rogers WJ, Pepine CJ, Reichek N, Sharaf BL, Reis S, Kelsey SF, Pohost GM. Abnormal myocardial phosphorus-31 nuclear magnetic resonance spectroscopy in women with chest pain but normal coronary angiograms. *N Engl J Med* 342:829–835; 2000. (PubMed)
282. Woo YJ, Zhang JCL, Vijayasarathy C, Zwacka RM, Englehardt JF, Gardner TJ, Sweeney HL. Recombinant adenovirus-mediated cardiac gene transfer of superoxide dismutase and catalase attenuates postischemic contractile dysfunction. *Circulation* 98([suppl II]):II255–II261; 1998. (PubMed)
283. Bolli R. Oxygen-derived free radicals and postischemic myocardial dysfunction (“Stunned myocardium”). *J Am Coll Cardiol* 12:239–249; 1988. (PubMed)
284. Deanfield JE, Shea M, Ribiero P, de Landsheere CM, Wilson RA, Horlock P, Selwyn AP. Transient ST-segment depression as a marker of myocardial ischemia during daily life. *Am J Cardiol* 54:1195–1200; 1984. (PubMed)
285. Laukkonen JA, Kurl S, Lakka TA, Tuomainen T-P, Rauramaa R, Salonen R, Eranen J, Salonen JT. Exercise-induced silent myocardial ischemia and coronary morbidity and mortality in middle-aged men. *J Am Coll Cardiol* 38:72–79; 2001. (PubMed)
286. Patel DJ, Knight CJ, Holdright DR, Mulcahy D, Clarke D, Wright C, Purcell H, Fox KM. Pathophysiology of transient myocardial ischemia in acute coronary syndromes: Characterization by continuous ST-segment monitoring. *Circulation* 95:1185–1192; 1997. (PubMed)
287. Davies RF, Goldberg AD, Forman S, Pepine CJ, Knatterud GL, Geller N, Sopko G, Pratt C, Deanfield J, Conti CR. for the ACIP investigators. Asymptomatic Cardiac Ischemia Pilot (ACIP) Study two-year follow-up: Outcomes of patients randomized to initial strategies of medical therapy versus revascularization. *Circulation* 95:2037–2043; 1997. (PubMed)
288. O'Neill WW, Serruys P, Knudtson M, van Es G-A, Timmis GC, van der Zwaan C, Kleiman J, Gong J, Roecker EB, Dreiling R, et al. Long-term treatment with a platelet glycoprotein-receptor antagonist after percutaneous coronary revascularization. *N Engl J Med* 342:1316–1324; 2000. (PubMed)
289. Cannon CP, McCabe CH, Wilcox RG, Langer A, Caspi A, Berink P, Lopez-Sendon J, Toman J, Charlesworth A, Anders RJ, et al. Oral glycoprotein IIb/IIIa inhibition with orbofiban in patients with unstable coronary syndromes

Atherosclerosis

- (OPUS-TIMI 16) trial. *Circulation* 102:149–156; 2000. (PubMed)
290. Lincoff AM, Harrington RA, Califf RM, Hochman JS, Guerci AD, Ohman EM, Pepine CJ, Kopecky SL, Kleiman NS, Pacchiana CM, et al. For the PURSUIT trial investigators. Management of patients with acute coronary syndromes in the United States by platelet glycoprotein IIb/IIIa inhibition: Insights from the platelet glycoprotein IIb/IIIa in unstable angina: Receptor suppression using integrilin therapy (PURSUIT) trial. *Circulation* 102:1093–1100; 2000. (PubMed)
291. Hennekens CH, Buring JE, Sandercock P, Collins R, Peto R. Aspirin and other antiplatelet agents in the secondary and primary prevention of cardiovascular disease. *Circulation* 80:749–756; 1989. (PubMed)
292. Collins R, Peto R, Baigent C, Sleight P. Aspirin, heparin, and fibrinolytic therapy in suspected acute myocardial infarction. *N Engl J Med* 336:847–860; 1997. (PubMed)
293. Davies MJ, Bland JM, Hangartner JRW, Angelini A, Thomas AC. Factors influencing the presence or absence of acute coronary artery thrombi in sudden ischaemic death. *Eur Heart J* 10:203–208; 1989. (PubMed)
294. Hales MR, Carrington CB. A pigmented gelatin mass for vascular injection. *Yale J Biol Med* 43:257–270; 1971. (PubMed)